



Lesser Known Capabilities of IEEE 1451.4 TEDS and TMS Software Support For Each

April 2002



Presentation Roadmap

- ***Core Functionality of IEEE 1451.4***
 - Mixed-Mode Interface
 - Self Identification
 - Self Configuration
- Scalability
- Flexibility
- TMS Venona



Core Functionality of Dot 4

- Define a Dot 4 Object
 - Mixed Mode Interface From Host To Sensor
 - Analog/Digital
 - Digital Mode Accesses TEDS
 - Transducer Electronic Data Sheet
 - Self Identification
 - Self Configuration



Core Functionality of Dot 4

- Mixed Mode Interface To Sensors
 - ICP®, IEPE
 - Inverted Excitation
 - Multi-Wire Sensors
 - Use Existing Wires, or...
 - Add Another



Core Functionality of Dot 4

- Self Identification
 - Determine What Type of Sensor It Is
 - Excitation / Signal Conditioning Required
 - Manufacturer ID, Serialization, Calibration
 - Available Dot 4 Configurations
 - TEDS (Transducer Electronic Data Sheet)



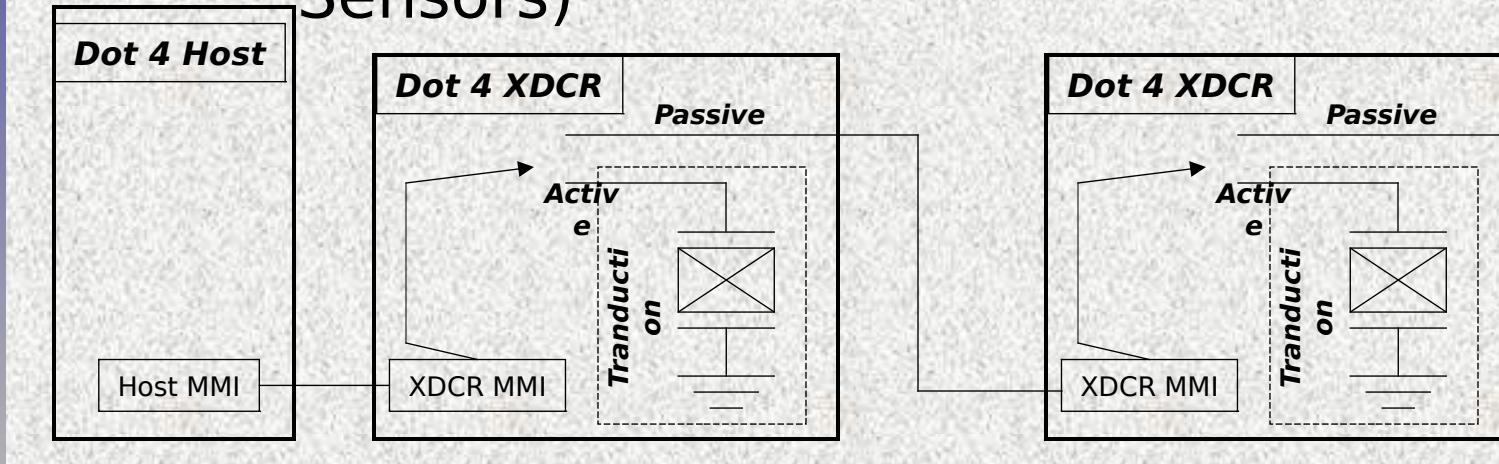
Core Functionality of Dot 4

- Self Configuration
 - Expose Multiple Configurations To Dot 4 Host
 - Active or Passive Config (Multi-Drop Sensors)
 - Multi-gain Config (Self-Attenuating Force Sensors)
 - Filtering (Internally A, C Weighted Microphones)



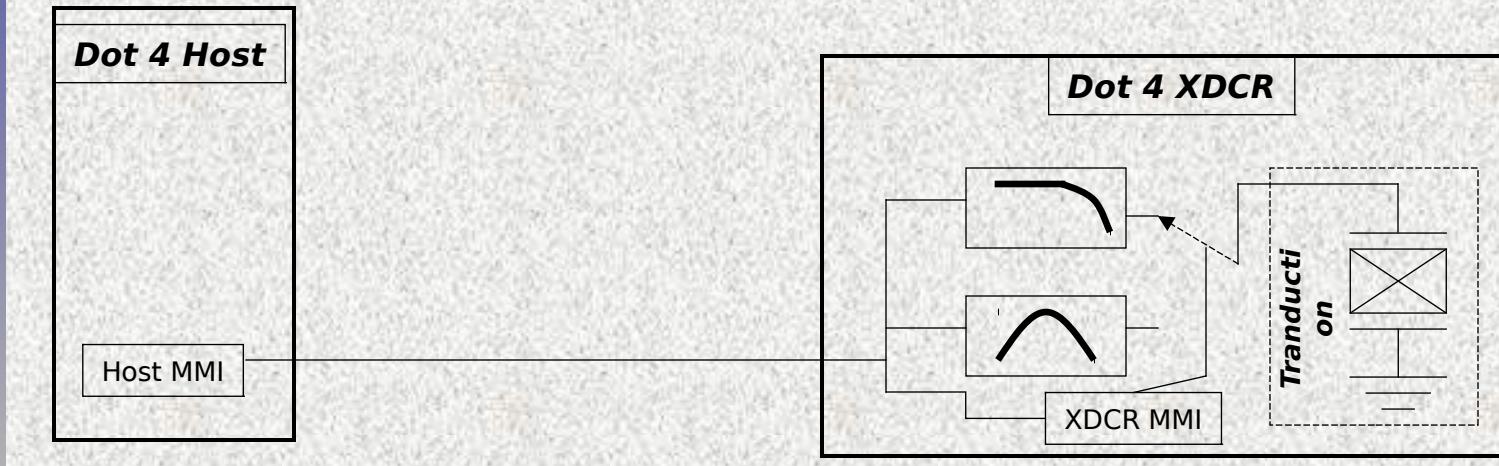
Core Functionality of Dot 4

- Self Configuration
 - Expose Configurations To Dot 4 Host
 - Active or Passive Config (Multi-Drop Sensors)



Core Functionality of Dot 4

- Self Configuration
 - Expose Configurations To Dot 4 Host
 - Selective Signal Conditioning In Sensor



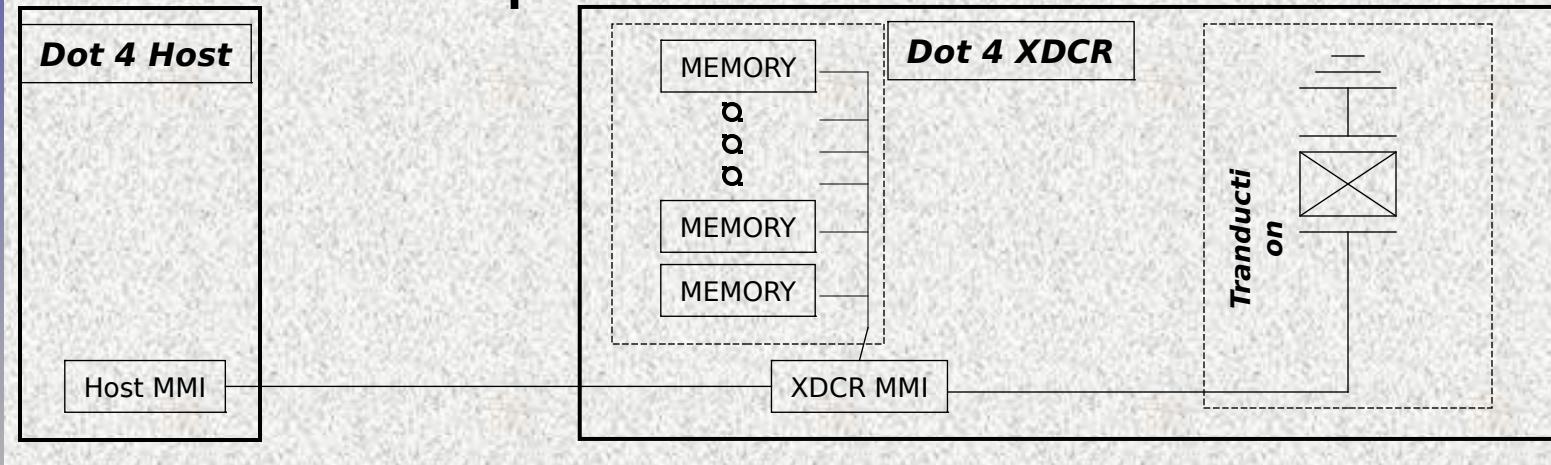
Presentation Roadmap

- Core Functionality of IEEE 1451.4
- ***Scalability***
- Flexibility
- TMS Venona



Scalability

- Current 256+64 Bit Memory (DS2430)
- 4 kBit Memory (DS2433)
- Multi-Chip Transducers



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- Scalability
- ***Flexibility***
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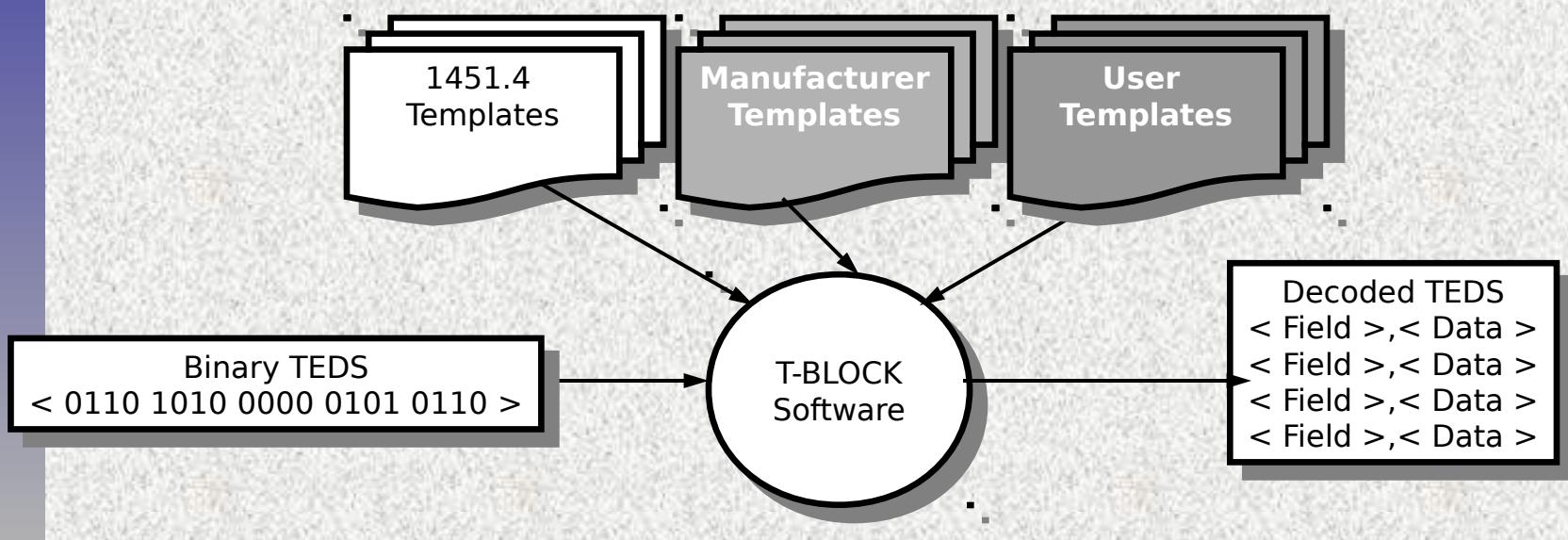
Dot 4 Flexibility

- Divide Self-Identifying TEDS into 2 parts:
 - Basic TEDS
 - Contains common info for all 1451.4 transducers: Mfr., Model, Serial
 - Extended TEDS
 - Contains decoding information, calibration information, others...



Dot 4 Flexibility

- Dot 4 Host Relies Upon External Templates To Decode The TEDS



Dot 4 Flexibility

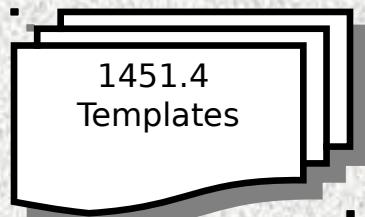
- IEEE Templates
 - Currently 22 templates (accels, microphones, charge amps)
- Manufacturer Templates
 - Brings in other sensor types
- User Templates
 - High end users, specific applications



Dot 4 Flexibility

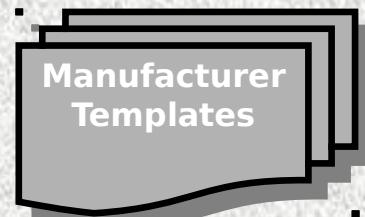
- How Standard Is Your TEDS Template?

All Groups Are Dot 4 Compliant



1451.4
Templates

Std. PCB Accels
Std. Endevco Accels
TMS Microphones
B&K Microphones



Manufacturer
Templates

Force Sensors
PCB Hammers
others...



User
Templates

TBD...

More Recognized



Less Recognized

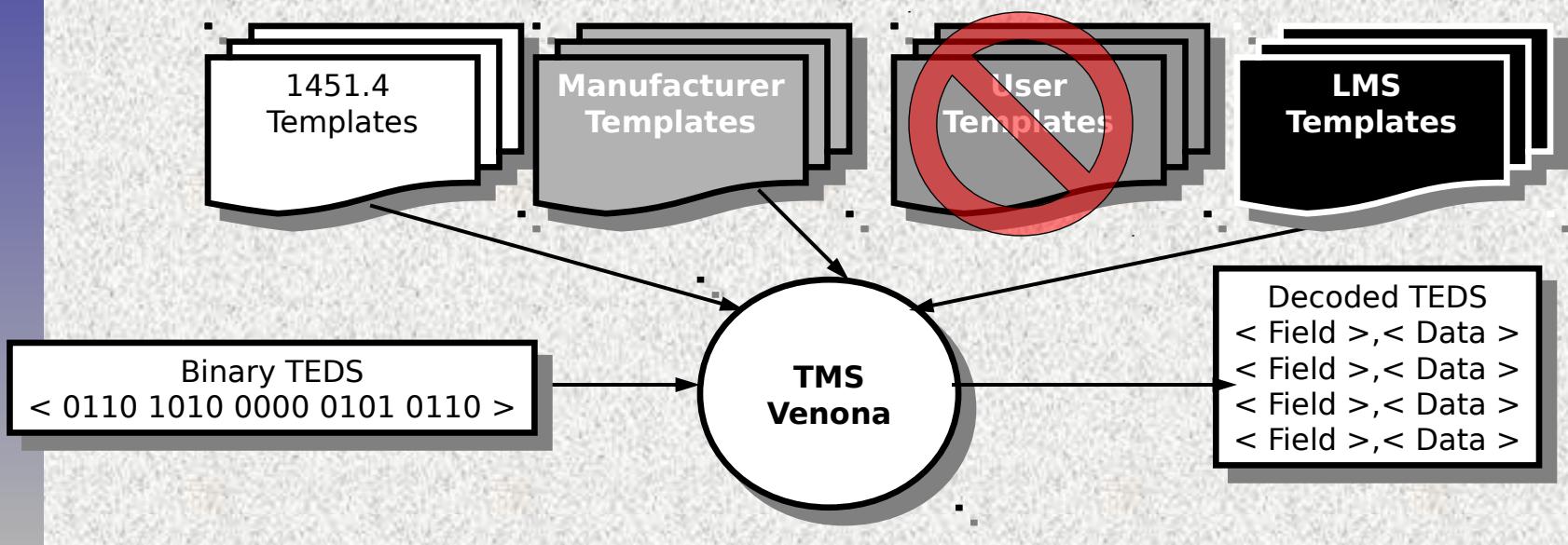
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- Core Functionality of IEEE 1451.4
- Scalability
- Flexibility
- **TMS Venona**



Venona - A Cross-Platform TEDS Engine

- Independent of Host Hardware
- Applicable To All PCB Group Products



Venona - Layer Separation

- Remove Hardware Dependency

